> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection is based on the belief that independent Claims 1, 5-6, 24 and 27 require both the first and second layers to be shrinkable, whereas the limitations in the last paragraph of each claim require one of the layers to be non-shrinkable. However, while the claims require each layer to have a "shrinkage extent," this does not mean that both layers must be shrinkable.

The specification defines "shrinkage extent" as an amount of shrinkage of a fiber or component when the fiber component is activated to shrink, such as by heating the fiber or component to a temperature equal to or greater than its shrinking temperature (p.11 lines 5-9). The specification then explains that the shrinkage extent may range from about zero to an amount which is 99% of the initial fiber length (p.11 line 6 – p.12 line 7). A fiber having a shrinkage extent of about zero is essentially non-shrinkable.

The foregoing can be explained as follows. The shrinkage extent of a fiber depends not only on the type(s) of polymer forming the fiber, but also on how the fiber is formed and processed. For example, a fiber may be stretched and oriented during formation, and/or subsequent processing, and then quenched and cooled so that the polymer molecules remain in a strained configuration due to the stretching. When the fiber is again heated to a temperature high enough to soften the polymer (i.e. a shrinkage temperature) the molecules relax and return to a more stable configuration, resulting in shrinkage of the fiber. Such a fiber would have a measurable shrinkage extent (i.e. a shrinkage extent greater than zero).

Another fiber may be formed of the same polymer(s) using a process which does not quench or cool the fiber in a stretched or oriented state. The polymer molecules forming this fiber would be relaxed, as opposed to strained. When this fiber is again heated to the shrinkage temperature of the polymer, little or no

shrinkage would result because the molecules are already relaxed. This fiber has a shrinkage extent of about zero (i.e. is essentially non-shrinkable), even though it has the same polymer composition as the first fiber described above.

In summary, a "shrinkage temperature" or "activation temperature" is a property of the polymer(s) forming the fiber. Yet a "shrinkage extent" depends not only on the polymer(s) forming the fiber, but also on how the fiber is formed and processed. These principles are well known to persons skilled in the art, and do not constitute Applications' invention. The same principles would apply to films and other materials formed of the polymer(s).

Applicants' independent claims require a first layer having a first shrinkage extent and a second layer having a second shrinkage extent different from the first shrinkage extent. For instance, one of the layers may have a shrinkage extent ranging from zero to 99% (p.12 lines 6-7). The other layer has a different shrinkage extent. Thus, the claims cover a) embodiments in which one layer shrinks but the other does not, as well as b) embodiments in which both layers shrink by different amounts.

The specification also describes both types of embodiments. A person skilled in the art would understand, from reading the specification, that the invention requires one layer to shrink more than the other. If one layer shrinks more than the other, the advantages of the invention are achieved regardless of whether or not the layer with less shrinkage has any shrinkage at all.

For these reasons, Applicants' claims are adequately supported by the specification. Applicants request withdrawal of the 35 U.S.C. § 112 rejection.

b) Claim Rejections Based on 35 U.S.C. § 102

The Examiner rejected Claims 1-4, 6-8 and 24-29 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 6,217,889 to Lorenzi et al. This rejection is respectfully traversed.

Applicants' independent claims require inter alia the steps of forming a first layer having a first shrinkage extent and comprising a nonwoven web, forming a

second layer having a second shrinkage extent different from the first and comprising a film, and shrinking at least one of the layers to produce a structured composite material having a pore size gradient in a z-direction wherein the first layer moves in a plane generally perpendicular to the composite material to form a plurality of fiber loop pores and the second layer forms a plurality of pores smaller than the fiber loop pores.

Lorenzi et al. discloses a laminate of a nonwoven web and a polymeric net (referred to as a scrim), with the latter being described in U.S. Patent 4,636,419, incorporated by reference. There is no indication of whether or not the nonwoven web is formed, stretched, or otherwise processed in a manner which renders it shrinkable.

As illustrated in the incorporated U.S. Patent 4,636,419, the polymeric net has a first set of parallel fibers extending in a first direction, a second set of parallel fibers extending in a second direction perpendicular to the first, and net openings between the fibrils which are very large compared to the size of the fibrils. This is typical of a scrim material. The openings in the disclosed polymeric net or scrim are much larger than the openings in a typical nonwoven web, for instance.

The polymeric net or scrim may be formed at the extrusion die (e.g. from extruded fibers), or by substantially modifying an extruded film by fibrillation or embossing, followed by stretching and splitting. After lamination to the nonwoven web, the polymeric net may be heat shrunk, causing puckering of the nonwoven fabric layer. However, because the openings in the polymeric net are very large (see Fig. 11 of U.S. Patent 4,636,419), it is very unlikely that the polymeric net derived from a film would shrink to such an extent that the pores in the net are smaller than the fiber loop pores in the nonwoven web. Such a result is not disclosed or suggested by the prior art.

Accordingly, Applicants request withdrawal of the rejection under 35 U.S.C. § 102(e).

The Examiner rejected Claims 1, 4-8 and 24-29 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 3,925,127 to Yoshioka. This rejection is respectfully traversed.

Yoshioka discloses a laminate of an inner plastic film layer between two outer paper layers. The laminate is then heated to cause shrinkage of the film and bulking of the paper layers. The laminate may be apertured as shown in Figs. 1 and 2.

Yoshioka does not disclose a structured composite material having a pore size gradient in a z-direction wherein a first (nonwoven web) layer moves in a plane generally perpendicular to the composite material to form a plurality of loop pores and the second (film) layer forms a plurality of pores smaller than the fiber loop pores. As shown in Figs. 1 and 2, the laminate is apertured through every layer. The apertures through the film layer appear much larger than any fiber loop pores which may be present in the paper layers. No fiber loop pores are apparent from the reference.

The Examiner rejected Claims 1, 4 and 24-26 under 35 U.S.C. § 102(b) as anticipated by European Patent Application 0,687,757 (Srinivasan et al). This rejection is respectfully traversed. The reference discloses a plastic film sandwiched between two fibrous layers (Figs. 1a, 1b, 1c and 1d). The laminate may be apertured all the way through, as shown in Fig. 1d. Contrary to Applicants' independent claims, the apertures shown passing through the film and laminate are much larger than any fiber loop pores in the fibrous layers.

Accordingly, Applicants request withdrawal of the claim rejections under 35 U.S.C. § 102(b).

c) Claim Rejections Based on 35 U.S.C. § 103(a)

The Examiner rejected Claims 5 and 9-10 under 35 U.S.C. § 103(a) as obvious over Lorenzi et al. This rejection is respectfully traversed. Lorenzi et al. does not disclose or suggest a composite material having a pore size gradient in a z-direction in which a second (film) layer forms a plurality of pores smaller than fiber loop pores in a first layer, as required by Claim 5. As explained with respect to Claim 1, the pores in the disclosed polymer net or scrim (derived from a film) are apparently much larger than fiber loop pores in the adjacent nonwoven layers.

Claims 9 and 10 depend from Claim 1 and are patentable over Lorenzi et al. for at least the same reasons, explained above.

The Examiner rejected Claims 2-3 and 9-10 under 35 U.S.C. § 103(a) as obvious over Yoshioka. This rejection is respectfully traversed. Claims 2-3 and 9-10 depend from Claim 1 and are patentable over Yoshioka for at least the same reasons, explained above.

The Examiner rejected Claims 2-3 under 35 U.S.C. § 103(a) as obvious over Srinivasan et al. This rejection is respectfully traversed. Again, these claims depend from Claim 1 and are patentable over Srinivasan et al for at least the same reasons, explained above.

d) Conclusion

Applicants believe that the claims, as now presented, are in condition for allowance. If the Examiner feels that any issue remains unresolved, then Applicants' undersigned attorney respectfully requests a telephone interview.

Respectfully submitted,

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